REMARKS/ARGUMENTS

Claims 5-11 are pending in the instant application. Claims 5-11 have been rejected. Claims 5 and 8 have been amended. No new matter has been added by these amendments. Reconsideration is respectfully requested in light of these amendments and the following remarks.

I. Rejection of Claims 5-11 under 35 U.S.C. § 112, first paragraph

Claims 5-11 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Examiner suggests that the added language "consisting of a single heavy or light chain Fv" in claims 5 and 8, and "the epitope detector is a universal epitope detector" have no support in the specification and thus constitute new matter.

Applicants respectfully traverse this rejection.

At the outset, it is respectfully pointed out that the Examiner has provided no evidence or reasoning, as required by MPEP § 2163.04, to challenge the adequacy of the written

description for these phrases.

Further, with respect to "universal epitope detector", this phrase and ability of a universal epitope detector to detect a general epitope is described in the specification as-filed at page 11, line 32, through page 12, line 16. Accordingly, use of this phrase in the claims clearly does not constitute new matter.

In addition, with respect to the phrase "heavy or light chain Fv", MPEP § 2163.02 makes clear that subject matter of a claim need not be described literally (i.e. using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. Instead, in accordance with MPEP § 2163.05, a claim limitation may be expressly, implicitly or inherently supported by the originally filed disclosure. Throughout the specification it is made clear that by single chain Fv it is meant to be inclusive of the heavy or light chain. See, for example, page 6, lines 9-30, of the specification as-filed, wherein a method is described for producing Fv fragments in eukaryotic host cells with a eukaryotic expression vector which has an operon having a DNA sequence which encodes the variable domain only of an antibody light or heavy chain. Also see page 10, line 26 through page 11, line 2 of the specification as-filed, wherein the ability of Fvs to serve as epitope

detectors of selected molecules is demonstrated for the p185 receptor. As specifically taught therein, for these experiments, a single chain Fv (ScFv) construct of 7.16.4 (designated as 7.16.4 ScFv) was produced in accordance with the procedure outlined by Peterson & Greene (DNA and Cell Biology 1998 17(12):1031-1040) wherein the Fv region of the heavy chain and light chain region was joined by a (gly4-Ser)5 linker. Thus, a person skilled in the art would clearly recognize in applicants' disclosure a description of the invention wherein the epitope detector consists of a single heavy or light chain Fv. Accordingly, this amendment also does not constitute new matter.

However, as Applicants argued in the response of November 5, 2001, amendment of the claims to include the phrase "heavy or light" is not required since what is meant by the phrase single chain Fv is well known to those skilled in the art and clear when read in light of teaching of the specification. The well known meaning of single chain Fv is clearly evidenced by the specification which cites several references teaching methods for production of single chain Fvs. See specifically page 6, line 4, through page 7, line 2. Thus, in an earnest effort to advance the prosecution of this case, Applicants have deleted the phrase "heavy or light" from claims 5 and 8.

Withdrawal of this rejection under 35 U.S.C. § 112, first paragraph, is therefore respectfully requested.

II. Rejection of Claims 5-7 under 35 U.S.C. § 112, second paragraph

Claims 5-7 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner suggests that claims 5-7 are vague and indefinite because the preamble is directed to a system for quantifying molecules expressing a selected epitope, while the system as claimed does not have an element for quantifying the molecules expressing a selected epitope.

Accordingly, in an earnest effort to advance the prosecution of this case, Applicants have amended claim 5 to clarify that the system also comprises an oligonucleotide attached to the single chain Fv or the constrained epitope specific CDR which is amplified and quantified by an aRNA technique. Support for attachment of an oligonucleotide to the single chain Fv or the constrained epitope specific CDR is provided throughout the specification and in particular at page 6, line 3, page 9, lines

19-23 and 24-25 and page 11, lines 13-15. Support for quantifying by amplification of the oligonucleotide via an aRNA technique is provided by teachings at page 9, line 33, through page 10, line 6, of the application as-filed. Accordingly, no new matter is added by this amendment.

This amendment clarifies the element of the system for quantifying molecules expressing a selected epitope. Accordingly, withdrawal of this rejection under 35 U.S.C. § 112, second paragraph is respectfully requested.

III. Rejection of Claims 5-6 and 8-11 under 35 U.S.C. § 103(a)

Claims 5-6 and 8-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki et al. (Jpn. J. Cancer Res., 1985, Vol. 86, pg. 885-889) in view of Eberwine et al. (U.S. Patent 5,922,553). The Examiner suggests that one of ordinary skill in the art at the time of the instant invention would have been motivated to combine the teachings of Suzuki et al., and Eberwine et al. to make the system as claimed with a reasonable expectation of success because the system of Suzuki et al. has 10^3-fold higher sensitivity and detects antigen in sera at levels below the detection limited of traditional ELISA methods, and Eberwine et al. disclose using labeled RNA to

determine the amount of select protein present in small amount.

Applicants respectfully traverse this rejection.

At the outset, Applicants respectfully disagree with the Examiner's suggestion that one of skill would be motivated to combine these teachings.

Suzuki et al. uses and detects DNA and therefore is not relevant to the instant invention involving RNA. Nor would one of skill be motivated to combine the teachings of Suzuki et al. which relate to DNA with the teaching of Eberwine.

Further, MPEP § 2143 and §2143.03 are quite clear; to establish a *prima facie* case of obviousness, the references when combined must teach or suggest all the claim limitations.

Neither of the cited prior art references teach or suggest an epitope detector consisting of a single chain Fv for the selected epitope or a constrained epitope specific CDR as claimed. Nor do these references teach or suggest quantification following amplification of the oligonucleotide of this epitope detector via an aRNA technique as claimed. Instead, Suzuki et al. teaches a method for detection of DNA while Eberwine teaches use of whole antibodies, not an epitope detector as defined by the instant claims. Thus, the cited combination of references cannot render obvious the invention as claimed. See *In re Royka*,

490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Withdrawal of this rejection under 35 U.S.C. 103(a) is therefore respectfully requested.

IV. Rejection of Claim 7 under 35 U.S.C. § 103(a)

Claim 7 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki et al. (Jpn, J. Cancer Res., 1985, Vol. 86, pg. 885-889) in view of Eberwine et al. (U.S. Patent 5,922,553) as applied to claims 5-6 and 8-11, *supra*, and further in view of Quentin-Millet et al.

Applicants respectfully traverse this rejection.

Claim 7 is a dependent claim of claim 5. In accordance with MPEP § 2143.03, if an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. As discussed in Section III, *supra*, the cited combination of Suzuki et al. and Eberwine et al. fail to provide the requisite teaching or suggestion of all claim limitations of claim 5 to render this claim and claims dependent therefrom obvious. The teachings of Suzuki et al. relate to DNA, not RNA as in the instant invention and the teachings of Eberwine et al. relate to use of antibodies, not an epitope detector as defined by the instant claims. In addition, neither of these references teach a

universal epitope detector as set forth in claim 7.

Further, the teachings of the secondary reference by Quentin-Millet et al. fail to remedy the deficiencies in the above combination.

Quentin-Millet et al. teaches that anti-filamentous hemagglutinin antibodies and anti-pertussin toxin antibodies can be used in an ELISA. Nowhere, however, does this reference teach or suggest an epitope detector consisting of a single chain Fv or CDR containing a general or universal epitope. Nor does this reference teach or suggest quantification following amplification of the oligonucleotide of this epitope detector via an aRNA technique as claimed.

Accordingly, this reference also fails to provide the requisite teaching or suggestion of all limitations of the claimed invention to render claim 7 obvious.

Withdrawal of this rejection under 35 U.S.C. § 103(a) is therefore respectfully requested.

V. Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,

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